

Accuracy and Area

























General Mathematics - Preliminary

Name: _____

CAPACITY MATRIX - GENERAL MATHEMATICS

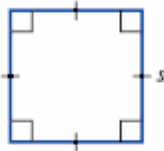
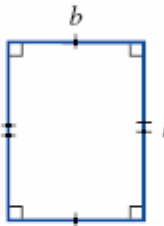
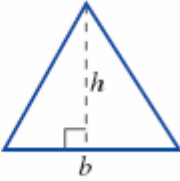
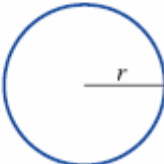
TOPIC: Measurement 1 & 2- Accuracy and Area

2 weeks

CONTENT	CAPACITY BREAKDOWN!	DONE IT!!!!	GOT IT!!!!	ON MY WAY!	WORKING ON IT!	HELP!!!!
1. Calculation of area (review)	Skillsheets 3.1 & 3.2 Ex 3A Q7-19					
2. Relative error	Skillsheet 2.3					
3. Percentage error	Ex 2B					
4. Significant figures	Skillsheet 2.4 Ex 2C Q1-6					
5. Scientific Notation	Ex 2C Q7-17					
6. Using field diagrams to calculate the area of irregularly shaped blocks of land	Ex 3B Practical activity					

Have your say!

REVIEW OF AREA

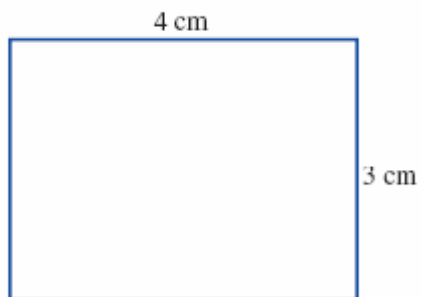
Shape		Formula
1. Square		$A = s^2$, where s is a side length.
2. Rectangle		$A = l \times b$, where l is the length and b is the breadth or width.
3. Triangle		$A = \frac{1}{2}bh$, where b is the base length and h is the height.
4. Circle		$A = \pi r^2$, where r is the radius.

REMEMBER

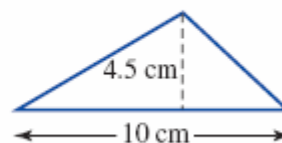
You will need to remember each of the following area formulas.

1. Square $A = s^2$
2. Rectangle $A = l \times b$
3. Triangle $A = \frac{1}{2} \times b \times h$
4. Parallelogram $A = b \times h$
5. Rhombus $A = \frac{1}{2} \times D \times d$
6. Trapezium $A = \frac{1}{2} \times (a + b) \times h$
7. Circle $A = \pi r^2$

Find the area of a rectangle with dimensions shown below.

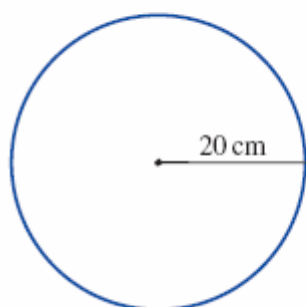


Find the area of the triangle at right.

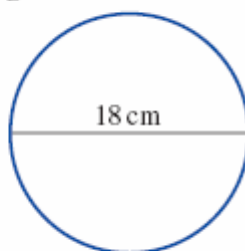


Find the area of each of the following circles.

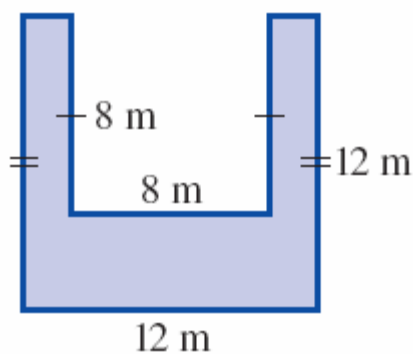
a



b

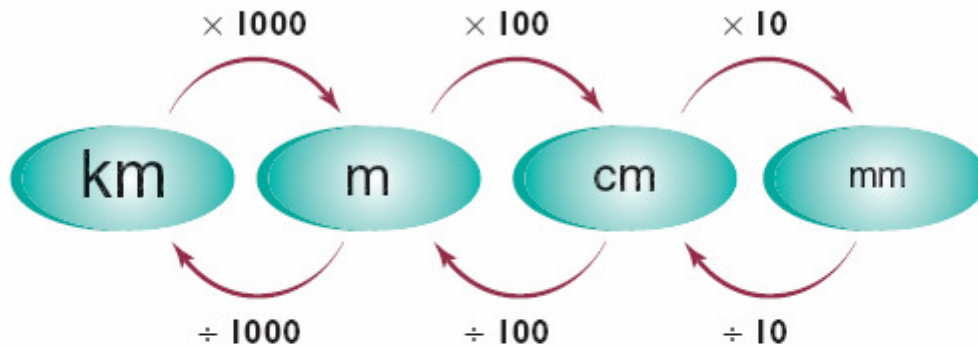


eg Calculate the area of the shaded region

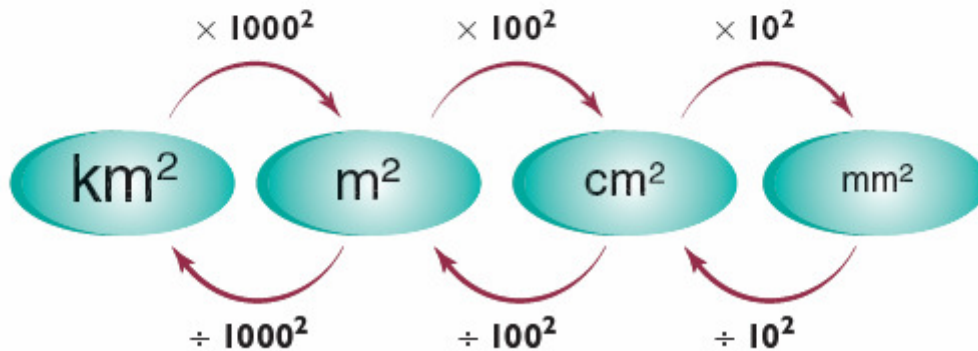


Converting Units of Area

Conversion of units of length



Conversion of units of area



eg Convert the following units given in brackets:

a) 2.5m^2 [cm^2]

b) $50\,000\text{ cm}^2$ [km^2]

Relative Error

REVIEW:

When we need to express one quantity as a percentage of another, we write them first as a fraction, then convert the fraction to a percentage.

eg Write 45 minutes as a percentage of 3 hours.

eg Scott has \$40 000 worth of shares in a jewellery company. The company pays Scott a dividend of \$2300. Find the dividend yield.

All measurements are approximations!

In practice, we usually choose a degree of accuracy that is convenient eg if you say that home is 5 km to school. In this case the measurement would be given to the nearest kilometre. The actual distance could be anywhere between 3.5 km and 4.5 km.

Maximum error is **half** the degree of accuracy.

eg Elliot has his height measured at 184cm. This measurement is given to the nearest centimetre. Between what values would his actual height be?

eg The mass of a trailer load of soil is given as 260kg. The mass is given to the nearest 10 kg. Between what two masses would the true mass of the trailer load actually be?

eg A car's fuel tank has a capacity of 65 litres. If this capacity is given to the nearest litre, find the degree of accuracy as a percentage (correct to 2 decimal places)

eg Tori has her height measured by 8 people. They obtain the following results:

168cm, 169 cm, 168cm, 170cm, 169cm, 169cm, 168cm, 168cm

What is the average result?